REMARKS

Amendments to claims 1, 30, 56, and 75 are for the purpose of clarifying what Applicant regards as the invention. In particular, these claims have been amended to clarify that an act is performed using a "processor." Since the amendment is to make explicit of what was already inherent in the claims, and the limitation is not being relied upon for distinguishing from the cited references, no new matter has been added, and no new search should be necessitated by the amendments.

I.   Claim Rejections under 35 U.S.C. § 101

Claims 1-14, 30-32, 50-67, 75, and 80-87 stand rejected under 35 U.S.C. § 101. Independent claims 1 and 30 recite storing the one or more images. Claim 56 recites storing the binned image data. Claim 75 recites storing the sorted image data. Applicant respectfully submits that contrary to the assertion in the Office Action, the act of storing data does in fact result in a physical transformation. Thus, claims 1, 23, 30, 56, and 75, and their respective dependent claims, are believed to satisfy § 101.

Applicant notes that the above argument was presented in the previous response, but the Office Action has not indicated why the act of storing data would not result in a physical transformation. Thus, if the Examiner is inclined to maintain the § 101 rejection, Applicant respectfully requests that the Examiner provide some support as to why storing data would not result in a physical transformation.

Claims 1, 30, 56, and 75 also recite a "processor," which is an apparatus that falls under a statutory class. Thus, these claims and their respective dependent claims should satisfy § 101 for this additional reason.

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II.   Claim Rejections under 35 U.S.C. § 102

Claims 1-32, 53-56, 66-67, 75, and 80-91 stand rejected under 35 U.S.C. § 102(b) as

allegedly being anticipated by US 5997883 (Epstein). Applicant respectfully notes that in order

to sustain a claim rejection under § 102, each of the claimed elements must be found, either

expressly or inherently, in the cited reference.

Claims 1, 15, and 23

Claim 1 recites collecting *data samples representative of a motion* of an object

(Emphasis Added). Claims 15 and 23 recite similar limitations. Epstein does not disclose or

suggest data samples that represent motion. According to page 2 of the Office Action, the

abstract of Epstein allegedly discloses data that represent motion of an object. However, the

cited passage of Epstein actually discloses:

> A method is disclosed to reconstruct multiphase MR images that
> accurately depict the entire cardiac cycle. A segmented, gradient-recalled-
> echo sequence is modified to acquire data continuously. *Images are
> retrospectively reconstructed by selecting views from each heartbeat
> based on cardiac phase* rather than the time elapsed from the QRS
> complex. Cardiac phase is calculated using a model that compensates for
> beat-to-beat heart rate changes.

Thus, the abstract of Epstein actually discloses reconstructing images based on a cardiac phase.

Notably, a cardiac phase represents a state of a heart at one point in time, and therefore, the

disclosed "cardiac phase" cannot and does not represent a *motion* of the heart (note that motion

occurs over a period of time, and does not happen at one point in time). Also, Epstein teaches

reconstructing an image by using data that correspond with a same cardiac phase. Therefore, the

reconstructing image in Epstein corresponds to an image of the heart at a given phase, and also

does not represent motion of the heart. Thus, the above cited passage of Epstein clearly does not disclose or suggest any data that represent motion of an object.

In addition, according to pages 2-3 of the Office Action, column 3, lines 12-22 of Epstein allegedly disclose data samples that represent motion. However, the cited passage of Epstein actually discloses:

> Prospectively gated, segmented k-space sequences have become popular for cardiac imaging mainly because images can be obtained in a breath-hold and therefore do not suffer from respiratory artifact. Images are formed by acquiring data over a series of heartbeats with data acquisition gated to the QRS complex of the ECG. For images to reconstruct properly, using current methods, the duration of image acquisition must be less than or equal to the duration of the shortest expected R--R interval. In practice, this usually means that the last 10-20% of diastole (.about.100-200 msec for a heart rate of 60 bpm) is not acquired.

There is nothing in this passage that discloses or suggests a data sample that represents motion. As similarly discussed, Epstein teaches reconstructing an image for each cardiac phase. Thus, the reconstruction technique discussed in the above passage is for reconstructing an image that corresponds to a specific time point, and the resulting reconstructed image does not represent any motion.

Also, according to page 3 of the Office Action, Epstein allegedly deals with motion of the heart, and therefore, discloses data that represent motion of an object. Applicant respectfully disagrees. Just because Epstein deals with motion of the heart, it does not mean that Epstein discloses data samples that represent motion. As discussed, Epstein teaches dealing with motion of the heart by using image data that correspond to a same cardiac phase (i.e., at a same time point) for reconstructing an image. Such image reconstruction process does not involve any use of data samples that represent a motion.

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Also, according to page 5 of the Office Action, figure 1 and column 2, lines 49-55 of

Epstein allegedly disclose the above limitations. However, the cited passages of Epstein actually

disclose, inter alia:

> Multiple phases of the cardiac cycle can be visualized by repeated
> acquisition of the same *k-space segment* within each R--R interval but
> *assigning the data* acquired at different time points in the cardiac cycle to
> different cardiac phases. (Emphasis Added)

Thus, the cited passages disclose acquiring k-space segments (which are themselves cardiac MR

images – see c1:48-58), and assigning the image data to different cardiac phases. There is

nothing in the cited passages of Epstein that discloses or suggests collecting *data samples that*

represent a motion of an object. Also, Applicant respectfully notes that the claims recite both

data samples and image data. Thus, the image (the k-space segment) of Epstein itself cannot be

analogized as the claimed data samples that represent a motion.

For at least the foregoing reasons, claims 1, 15, and 23, and their respective dependent

claims, are believed allowable over Epstein.

Claims 30, 56 and 75

Claim 30 recites associating the image data with one or more phases of *a motion that is*

controllable by a patient (Emphasis Added). Claim 56 recites binning the image data based on a

characteristic of a motion of the object, *wherein the motion is controllable by a patient*

(Emphasis Added). Claim 75 recites sorting the image data based on a portion of a cycle of a

motion of the object at which the image data are acquired, *wherein the motion is controllable by*

a patient (Emphasis Added). Epstein does not disclose or suggest such limitations. Rather

Epstein discloses assigning data acquired at different time points in a cardiac cycle to different

cardiac phases (c2:49-53). Thus, Epstein specifically deals with motion of a heart, which beats

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by itself and is therefore *not controllable* by a patient, which is the <u>opposite</u> as that described in the claims. For at least the foregoing reasons, claims 30, 56, and 75, and their respective dependent claims, are believed allowable over Epstein.

Applicant notes that the above arguments for claims 30, 56, and 75 were presented in the previous response, but were not considered in the Office Action. Thus, to the extent that the Examiner is inclined to maintain the rejection for these claims, Applicant respectfully requests that the above arguments be considered and that the Examiner indicates where Epstein discloses a motion that is controllable by a patient.

CONCLUSION

If the Examiner has any questions or comments, please contact the undersigned at the number listed below.

To the extent that any arguments and disclaimers were presented to distinguish prior art, or for other reasons substantially related to patentability, during the prosecution of any and all parent and related application(s)/patent(s), Applicant(s) hereby explicitly retracts and rescinds any and all such arguments and disclaimers, and respectfully requests that the Examiner re-visit the prior art that such arguments and disclaimers were made to avoid.

The Commissioner is authorized to charge any fees due in connection with the filing of this document to Vista IP Law Group's Deposit Account No. **50-1105,** referencing billing number **VM 03-035-US.** The Commissioner is authorized to credit any overpayment or to charge any underpayment to Vista IP Law Group's Deposit Account No. **50-1105,** referencing billing number **VM 03-035-US.**

Respectfully submitted,

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